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CLAIMS:

1. A method for controlling a system formed from a plurality of interdependent units to achieve an outcome, comprising the steps of establishing a desired outcome for the system, and establishing a desired action for each unit responsive to the outcome but independently of the desired action of the other units.
2. A method in accordance with Claim 1, wherein the desired action for a said unit is established in response to the current position of at least one reference portion of the system relative to a desired position of that reference portion.
3. A method for controlling a system formed from a plurality of interdependent units to achieve an outcome, comprising the steps of establishing a desired outcome for the system, and establishing a desired action for each unit responsive to the outcome, wherein the desired action for a said unit is established in response to the current position of at least one reference portion of the system relative to a desired position of that reference portion.
4. A method in accordance with Claim 2 or 3, wherein the desired action for a said unit involves calculating a difference value between the current position of a said reference portion and the desired position of that reference portion, and using said difference value to establish said desired action.

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5. A method in accordance with any preceding claim, further comprising the steps of establishing an operation action for each unit; and instructing each unit to initiate its operation action.
- 5 6. A method in accordance with Claim 5, further comprising the step of iterating the method steps to update the operation action.
- 10 7. A method in accordance with Claim 6, wherein the rate of iteration is constant throughout the system.
8. A method in accordance with Claim 6, wherein the rate of iteration varies between units of the system.
- 15 9. A method in accordance with any one of Claims 5 to 8, wherein the operation action for at least some of the units is the desired action.
- 20 10. A method in accordance with any one of Claims 5 to 9, further comprising the steps of establishing constraint factors for the system, and establishing a constrained action for at least one unit responsive to the constraint factors.
- 25 11. A method according to Claim 10, wherein the operation action for a unit for which a constrained action has been established is the constrained action.
- 30 12. A method in accordance with either Claim 10 or 11, wherein only the constraint factors for a unit are utilised in establishing the constrained action for that unit.

13. A method in accordance with Claim 10 or 11, wherein
constraint factors relating to at least one unit are
utilised in establishing a said constrained action
5 for another said unit.
14. A method in accordance with any preceding claim,
further comprising the step establishing a plurality
of intermediate outcomes to achieve the desired
10 outcome.
15. A method in accordance with Claim 14, wherein the
desired actions of the units are established in
response to individual ones of the intermediate
15 outcomes.
16. A method in accordance with Claim 14 or 15, wherein
the system comprises a series of subsystems, each
subsystem being comprised of at least one of the
20 plurality of interdependent units, and the method
further comprises the steps of establishing a said
intermediate outcome for each subsystem, whereby the
desired action for each unit is established
responsive to the intermediate outcome of the
25 subsystem to which it is associated.
17. A method in accordance with Claim 14 or 15, wherein
the method steps are iterative so that a plurality of
the desired actions for each unit is established over
30 time, and whereby the desired actions are established
responsive to a plurality of the intermediate
outcomes.

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18. A method in accordance with any preceding claim,
wherein the outcome is dependent on a spatial
relationship of the system.
- 5 19. A method in accordance with Claim 18, wherein the
outcome is a predetermined spatial relationship of
the system relative to a desired location.
- 10 20. A method in accordance with Claim 18 or 19, wherein
the outcome is also time dependent.
21. A method in accordance with any one of Claims 18 to
20, wherein the desired action involves adjusting the
spatial position of that unit.
- 15 22. A method in accordance with Claim 21, wherein the
adjustment is by way of movement of the unit and/or
expansion or contraction of that unit.
- 20 23. A method in accordance with any one of Claims 18 to
22 when dependent on Claim 2 or 3, wherein the
outcome determines the desired position.
- 25 24. A method for controlling a plurality of
interdependent units, comprising the steps of, for
each unit, independently deriving an operation
action, the operation action being responsive to
starting information.
- 30 25. A method in accordance with Claim 24, wherein the
starting information is selected from the group
comprising a desired outcome, a desired action, a
constraint action and a reference position.

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26. A system for controlling a plurality of interdependent units moveable to achieve an outcome, the system comprising a controller arranged to
5 implement a control methodology in accordance with any one of Claims 1 to 23.
27. A system in accordance with Claim 24, wherein the information regarding the presence of constraining
10 factors is collected by a sensor.
28. A system in accordance with Claim 25, wherein the movement is performed by an actuating means.
- 15 29. A system in accordance with any one of Claims 24 to 26, wherein each interdependent unit is a constituent part of a robot.
- 20 30. A system in accordance with Claim 27, wherein each constituent part is a module in a robotic manipulator.
- 25 31. A system in accordance with any one of Claims 24 to 28, further comprising control means capable of switching the control methodology of the system to a centralised control methodology.
- 30 32. A computer program arranged to, when loaded on a computing system, perform the method of Claim 1.
33. A computer readable medium incorporating a computer program in accordance with Claim 30.

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34. A computer program arranged to, when loaded on a computing system, perform the method of Claim 3.
35. A computer readable medium incorporating a computer program in accordance with Claim 34.
36. A system comprising a plurality of units, the units being interdependent and being capable of movement relative to one another, at least one actuator operative to move the units, and a control system operative to impart instructions to the at least one actuator to move the units, wherein the controller uses a control methodology in accordance with any one of Claims 1 to 23.
37. A system in accordance with Claim 36, wherein the units are interdependent by being in a predetermined spatial relationship.
38. A system in accordance with Claim 37, wherein the units are interconnected.
39. A system in accordance with any one of Claims 36 to 38, wherein the control system comprises a plurality of controllers located in respective ones of the units, each controller being operative to impart instructions to the at least one actuator to move the unit to which it is associated, wherein the controllers use a control methodology in accordance with any one of Claims 1 to 23.
40. A system in accordance with any one of Claims 36 to 39, wherein each unit is a constituent part of a

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robot.

41. A system in accordance with Claim 40, wherein each
constituent part is a module in a robotic
5 manipulator.
42. A system comprising a plurality of subsystems, each
subsystem comprising a plurality of units, the units
being interdependent and being capable of movement
10 relative to one another; at least one actuator
operative to move the units in each subsystem; and a
control system operative to impart instructions to
the at least one actuator using a control methodology
in accordance with any one of Claims 1 to 23.
- 15 43. A system according to Claim 42, wherein to achieve a
desired outcome, intermediate outcomes are
established for each of the subsystems, and wherein
the control system coordinates movement of the
20 subsystems by coordinating the intermediate outcomes
for each subsystem.